

Exos independently drives to the field, cuts grass, fertilizes, then delivers the cut grass and distributes to animals.



## Autonomous Unit Cuts, Transports, And Feeds Fresh Grass

The Lely Exos is the first autonomous solution to harvest and feed fresh grass to cattle up to 12 times per day. Its capabilities include mowing, transporting, feeding, and fertilizing.

Inge Baars, Sr. Corporate Communications Specialist, points out that the addition of fresh grass to cattle rations maximizes the use of a plant's nutrients, protein, and energy, translating into more milk. Research has shown cows eating fresh grass also expel less methane due to the increased digestibility of the grass.

The Exos receives orders from the aligned software system, independently drives to the field, cuts the desired amount of grass, and liquid fertilizes immediately. The fresh grass is carried back to the farm and distributed to the animals. Between assignments, it recharges and waits for new directions.

The machine is fully electric with battery pack, power control, computer, and drive control placed in a low position in the center

of the machine. It's equipped with 4-WD and steering. A double knife cutter bar aided by plastic flaps cuts and conveys grass carefully onto a belt which transfers the product into a 3.4-ton hopper. Front and rear-mounted cameras improve timely speed and stopping capabilities, and GPS provides accurate navigation while ultrasonic sensors are focused for tight areas.

Grass is weighed for yield and feed results, and electrically driven rollers discharge the forage on either side.

Lely has dealers throughout North America that can be found on their website locator page. Interested customers are encouraged to contact their local Lely representative for pricing and availability.

Contact: FARM SHOW Followup, Lely Headquarters, Cornelis van der Lelylaan 1 3147 PB Maassluis The Netherlands (ph +011 31 88 122 8221; communications@lely.com; www.lely.com).



SteadySteer drive ring mounts around the steering wheel of the vehicle. It's a split ring, so the wheel doesn't need to be removed. The drive motor goes around that. Then the steering controller needs to be mounted in the cab, and a few cables will need to be installed.

## Affordable Universal Hands-Free Steering

If your ag vehicle has a steering wheel, you can have hands-free, pass-to-pass steering with SteadySteer from Ag Leader. The system installs easily on practically any machine, from tractors to application units to harvest equipment. Not only does it not require the installation of a hydraulic valve, but it can be moved easily from one machine to another.

"Installation is very easy and takes only 1 to 2 hours," says Sam Worley, Ag Leader. "It's simple enough for most to install, but our dealer network would work with the customer for install/questions."

The SteadySteer drive ring mounts around the steering wheel of the vehicle. It's a split ring, so the wheel doesn't need to be removed. The drive motor goes around that. Then the steering controller needs to be mounted in the cab, and a few cables will need to be installed. Finally, the system needs to be calibrated.

"We provide custom install kits for more than 900 ag vehicles and have a universal kit

for others," says Worley.

An InCommand display from Ag Leader and some type of GPS receiver are the only other requirements. Properly mounted, SteadySteer co-exists with manual steering. It's designed not to interfere with steering column controls or gripping the steering wheel and will not impede the operator's view.

The high-torque motor and gear teeth deliver power as needed. One user suggested on a YouTube video that a human cannot turn the wheel as fast as SteadySteer will do it.

The accuracy of steering is dependent on the type of GPS and correction source used. SteadySteer is compatible with everything from WASS to RTK.

According to Worley, a complete SteadySteer setup, including an InCommand display and GPS receiver, starts at around \$10,000. Visit the Ag Leader website to find the nearest dealership.

Contact: FARM SHOW Followup, Ag Leader (www.agleader.com).



Based in Michigan, the emphasis is on a design that can handle the winter weather. Bows are placed every 4 ft., not the standard 5 to 6 ft. Cross braces are on every bow and oriented lower than most for more support.

## Hoop Buildings Designed For Do-It-Yourselfers

Nifty Hoops hoop house was designed by growers to go up fast and easy.

"It started with community breakfasts of 150 to 200 people. Food was sourced from local farms, local chefs did the cooking, and Nifty Hoops founder Jeff McCabe hosted," says Tomm Becker, Nifty Hoops. "People would drop \$10 to \$15 in a jar to help fund hoop houses for local farmers."

More than \$400,000 was raised over 4 years through the one-meal per week effort. The money was loaned to local farmers, who would pick out a hoop house from a manufacturer. People from the breakfasts would volunteer to help put it up. Invariably, there would be something that didn't work quite right or parts missing.

"We would suggest improvements to the manufacturer, but they weren't interested," says Becker.

In 2011, McCabe focused his attention on designing a hoop house that could be put up in a day with four or five people. Frame members are heavy-duty steel tubing, laser cut for precise cut-outs and attachment holes. This ensures simple installation, superior strength, and durability. Every package comes pre-drilled and ready to bolt together.

Based in Michigan, the emphasis is on a design that can handle the winter weather. Bows are placed every 4 ft., not the standard 5 to 6 ft. Cross braces are on every bow and oriented lower than most for more support. Gussets on every bow support the truss assembly and add strength. Steel frame end walls eliminate the need to jury-rig one.

"End walls often face head-on into the wind," says Becker. "We often saw DIY ones built out of 2 by 4s fail. Ours come with woven reinforced plastic for even more strength."

To handle the cold temperatures, Nifty Hoops come with a double layer of plastic and a small 12V fan that runs all the time. Becker explains that the fan does double duty.

"It inflates the two layers to help insulate, but it also keeps the plastic tight," he explains. "Plastic wears out prematurely when it is not kept tight. The insulation means it can be 0 degrees outside and 70 to 80 inside."

The tight plastic, combined with the long straight rafter down the peak and the Gothic design, helps the snow slide off easier. "In our northern winters, we need snow to slide off," says Becker.

Other strength-related features include wind bracing in every corner, double

aluminum quick locks with cam inserts, and roll-up curtains using the same 11-mil woven poly as with end walls.

The steel frame end walls include people access at the main door and an 8 by 8-ft. equipment access door at each end. End-wall ventilation includes 2 by 4-ft. aluminum louvers with 12V DC linear actuator motors and low-voltage thermostatic controls.

An end-to-end, 1-in. pvc conduit and fittings carry louver wiring and allow other electrical functions.

Options include automatic side ventilation with motorized roll-up, overhead irrigation, a drip irrigation kit, and trellising supplies.

Hoop houses are available in widths of 22 1/2 ft. (\$5,400 to \$22,000) and 30 ft. (\$8,600 to \$25,500). Lengths start at 24 and 40 for the two models, respectively, and run up to 192 ft.

Given that the company started with volunteers doing the installation, community builds with the company supervising the process are a popular option. Becker notes that bringing in a crew for a full installation adds thousands to the cost of a hoop house. The "erector set" nature of the design makes a community build or DIY attractive.

"Projects are usually completed in a day like an old-fashioned barn raising," says Becker. "If a buyer wants to do the installation, we support them with manuals and videos and are available for questions. Being involved in the building process also makes it easier when the plastic over the top and end walls needs to be replaced every 8 to 10 years."

"We have customers in Arizona and other desert states using our structures for overhead irrigation, and our double layer of plastic reduces the sunlight," says Becker. "We have people using them with aquaponics and high-value crops like ginger and turmeric. People have put poultry in them, and others used them for wedding receptions and agritourism."

Nifty Hoops are approved for funding through the Natural Resource and Conservation Service (NRCS). "NRCS loves us because our hoop houses actually get built," says Becker. "Too often people order a hoop house and put off building it. The NRCS knows ours will go up and pass inspection."

Contact: FARM SHOW Followup, Nifty Hoops, 170 April Dr., Suite D, Ann Arbor, Mich. 48103 (ph 734-845-0079; info@niftyhoops.com; www.niftyhoops.com).